

DATA NAME: DEM24K

LATTICE NAME: d<xxxxx>

LATTICE AREA: 1 x 1 degree block tiles

LOCATION: GIS Raster:

LATTICE DESCRIPTION:

The DEM lattices were imported from the 1:24,000 scale 1 arc-second (1 second) US Geological Survey (USGS) Digital Elevation Models (DEMs) extracted from the the USGS National Elevation Database (NED). When projected from Decimal Degrees to Albers, cell sizes were set to 30 meters, equivalent to the standard USGS DEMs that were primarily used to create the NED.

COMPLETENESS:

The DEMs cover the entire state of California, plus neighboring portions of Oregon, Nevada, and Arizona.

The DEMs are stored as Arc/Info GRIDS that cover 1 degree of latitude and longitude. The GRIDS overlap the degree boundaries to the extent required to make a rectangle in the Albers projection. This means that adjacent GRIDS overlap, however the data values are identical in the overlap areas. Thus, when merging adjacent DEMs, it makes no difference which DEM takes preference, and no averaging is required.

Also available is a single statewide seamless DEM clipped to the 1:100,000 scale state boundary. Areas outside the state or coastline have been set to NO DATA.

VITAL STATISTICS:

Quad-based metadata provided by USGS are stored in two polygon-based shapefiles: meta_a (albers projection), and meta_dd (decimal degrees). These metadata describe each of the DEMs that were used to create the NED.

Horizontal Datum: NAD27 (spheroid: Clarke 1866)

Vertical Datum: NGVD 29

Projection: Albers conic equal area

Units: Meters

Source: U.S Geological Survey

Source Media: CD ROM

Data Scale: 1:24,000

Data Resolution: 30 meters

Source Ground Unit:

Source Z Unit: Meters

Capture Method: Various (scan techniques)

Source Accuracy: Because elevation postings model a surface and do not represent accuracy is difficult to measure and is not stated by the USGS. 7 meters is the desired vertical

Conversion Software: ARC/INFO Rev 7.2.1

Data Structure: Grid cell-based

ARC/INFO Coverage Type: Lattice

ARC/INFO Precision: Double
 ARC/INFO Tolerances: Not applicable
 Number of Features: Approximately 11.25 million per degree block (Approximately 3000 columns by 3750 rows)
 Layer Size: Average 20 MB per degree block
 Processing platform: Sun Sparc 3000 workstation
 Data Completed: January 2000

NAMING CONVENTION:

Lattice names begin with a "d" and are based on the latitude and longitude of the southeast corner of the degree block. For example, the southeast corner of lattice "d36121" is located at latitude 36 00 00, longitude -121 00 00.

The table below shows the 1x1 degree blocks necessary for displaying the Caltrans District extents:

DISTRICT	1	2	3	4	5	6
BLOCKS	D41124	D41123	D40121	D38123	D37122	D37118
	D41123	D41122	D39122	D38122	D37121	D37120
	D40124	D41121	D39121	D38121	D36122	D37119
	D40123	D41120	D39120	D37123	D36121	D36118
	D39124	D40123	D38122	D37122	D36120	D36120
	D39123	D40122	D38121	D37121	D35121	D36119
	D39122	D40121	D38120	D36121	D35120	D35117
	D38123	D40120	D38119		D35119	D35118
	D38122	D39123			D34120	D35120
		D39122			D34119	D35119
		D39121				D34117
		D39120				D34118
						D34119
DISTRICT	7	8	9	10	11	12
BLOCKS	D34117	D35114	D38118	D38121	D33114	D33117
	D34118	D35115	D38119	D38120	D33115	D33118
	D34119	D35116	D37117	D38119	D33116	
	D33117	D35117	D37118	D37121	D33117	
	D33118	D34114	D37119	D37120	D32114	
		D34115	D36115	D37119	D32115	
		D34116	D36116	D36121	D32116	
		D34117	D36117	D36120	D32117	
		D33114	D36118			
		D33115	D35115			
		D33116	D35116			
		D33117	D35117			
			D35118			

ADDITIONAL PROCESSING NOTES:

Source:

The DEMs were extracted from the USGS National Elevation Database, described by USGS as "a seamless mosaic of best-available elevation data. The 7.5-minute elevation data for the conterminous United States are the primary initial source data. In addition to the availability of complete 7.5-minute data, efficient processing methods were developed to filter production artifacts in the existing data, convert to the NAD83 datum, edge-match, and fill slivers of missing data at quadrangle seams. One of the effects of the NED processing steps is a much-improved base of elevation data for calculating slope and hydrologic derivatives."

The DEMs were received as 7 Arc/Info GRIDs that seamlessly mosaic (because they were extracted from a seamless GRID) with horizontal coordinates in decimal degrees and vertical units in floating point meters. The following processes were applied to the seven DEMs:

1. Converted to integer centimeters (in order to preserve vertical resolution but reduce storage requirements).
2. Mosaicked into a single statewide DEM.
3. Projected to Albers equal area (horizontal units are meters, cell size 30 meters) using a bilinear resampling method.
4. Vertical units were converted to integer feet.

Zunits:

The final DEMs were stored with elevation values as integer feet in order to reduce storage requirements (integers require much less storage than floating point values), yet preserve some precision (feet are smaller units of measurement than meters).

DATA QUALITY ASSESSMENT:

The following are subjective comments regarding this data.

These DEMs are a superior product to the 30 meter DEMs traditionally available from USGS. As described above, these have been processed to remove production artifacts, edgematched, and any interquad gaps filled in. These have been generated from the best available DEMs, though the horizontal resolution of any 10 meter DEMs has been lost by resampling to 1 arc-second. These are better than the standard DEM product for calculating hydrologic derivatives, but cannot be considered a hydrologically correct DEM.

ADDITIONAL INFORMATION:

Additional information is available from the USGS document "Digital Elevation Models, Data Users Guide". This can be ordered from:

Earth Science Information Center
U.S. Geological Survey
507 National Center

Reston, Virginia 22092

(703) 648-6045

Or it is available online at:

http://edcwww.cr.usgs.gov/Webglis/glisbin/guide.pl/glis/hyper/guide/usgs_dem

DATA CONTACT:

Contact Name: Steve Flatt

Contact's Phone: 916-464-4584